

SYNTHETIC APERTURE RADAR SYSTEM AND METHOD FOR LOCAL POSITIONING

ABSTRACT OF THE DISCLOSURE

A positioning system includes a passive, isotropic reflecting landmark at a fixed position and a device. The device transmits an electromagnetic pulse having a circular polarization and receives a return signal over a period of time. The return signal includes a reflected pulse from the reflecting landmark. The processes the return signal to isolate the reflected pulse from the return signal and to determine a range from the device to the reflecting landmark. The reflecting landmark includes a first passive reflector, a second passive reflector, and a static structure configured to statically position the second passive reflector at an angle relative to the first passive reflector. The device optionally moves in a particular direction while receiving the return signal, detects a Doppler shift in the reflected pulse portion of the return signal, and determines an angle between the particular direction and a straight line between the device and the landmark.